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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,383	07/26/2000	Peter Schroeder	06618/580001/CIT3149	8151

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EXAMINER

VO, CLIFF N

ART UNIT

PAPER NUMBER

2676

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/820,383

Applicant(s)

SCHROEDER ET AL.

Examiner

CLIFF N. VO

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/23/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 and 16 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-14 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office action is in response to the Amendment filed 10/23/2003 which has been entered into the record of file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-6 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by DeRose et al (U.S. Patent Application No. 2001/0002131).

As per independent claim 1, DeRose et al teach a method for compressing information indicative of a three dimensional surface ([0004]) comprising a step of determining a function which approximates some aspect of the surface ([0031], lines 1-8, i.e., Energy function, skin surface), and a step of defining the surface in terms of one

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scalar per point relative to the function ([0032], especially at lines 8-10, "one scalar per point", i.e., $S_1(P_1)$).

As per dependent claim 2, DeRose et al further teach wherein the step of defining comprises a coarse representation and subsequently increasing a resolution of the coarse representation to a finer representation ([0035], coarse representation, "skin mesh").

As per dependent claim 3, DeRose et al further teach wherein the coefficients of the finer representation are all scalar functions ([0036], [0039], lines 1-16, and [0057], i.e., consistently defining scalar fields for the vertices, i.e., coefficients, on the finer representation, "subdivision mesh").

As per dependent claim 4, wherein the vertices, i.e., coefficients, of the finer representation confine a residual area to a normal direction of the surface ([0065]).

As per dependent claim 5, DeRose et al further teach wherein the surface is defined by a parametric function ([0035], lines 1-8).

As per dependent claim 6, DeRose et al further teach wherein the surface is defined by a polyline (Fig.13 shows a process to smooth the curved surface, e.g., Geri's nose as shown in Fig.3, by means of the smooth subdivision ([0077]), wherein the curved surface is represented by a B-Spline ([0077], lines 11-16) which will be subdivided. A plurality of **connected edges**, each edge is defined by two endpoints, i.e., vertexes, located on the B-Spline defining the curve of the surface ([0077], lines 1-6) is known as a polyline as now claimed).

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As per dependent claim 8, DeRose et al further teach wherein the polyline is defined as a function such that it can be described as one scalar per point of the polyline ([0032]).

4. Claims 13-14 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Sigeti et al (U.S. Patent No. 6,208,997).

As per independent claim 13, Sigeti et al teach a data processing system for creating a mesh by forming a plurality of isosceles triangles (Figs.2A-2F, col.9, lines 20-55), each having a vertex defined by a single scalar, the scalar representing a polyline extending normally from a midpoint of a base of the triangle (Figs.2A-2B, col.9, lines 20-37) and using the triangles to form a mesh that presents the surface (col.9, lines 40-49).

As per dependent claim 14, Sigeti et al further teach wherein the mesh is semi-regular having connectivity formed by successive quadric-section of coarse base domain phases (col.9, lines 50-67, i.e., quadric-section, "diamond").

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeRose et al (US. Patent Application No. 2001/0002131) in view of Sigeti et al (U.S. Patent No. 6,208,997).

As per claims 9-12, it should be noticed that DeRose et al fail to teach wherein the polyline is substantially normal to the surface and forms an isosceles triangle with neighboring line segments. However, Sigeti et al teach another data processing system for generating a mesh, comprising a plurality of isosceles triangles (Fig.2A-2F), for a three dimensional model wherein a polyline is substantially normal to the surface (Figs.2A-2F; col.9, lines 20-55, i.e. polyline VaVc is substantially normal to the surface containing line VoV1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use isosceles triangle in generating a mesh for a three dimensional object as taught by Sigeti et al in order to make it more efficient since it would have provided a continuous representation of the surface of 3D object as suggested by Sigeti et al at col.10, lines 15-19.

Response to Arguments

7. Applicant's arguments with respect to claims 1-6 and 8-14 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

8. Claims 15-16 are allowed.

9. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLIFF N. VO whose telephone number is 571-272-7651. The examiner can normally be reached on 2nd Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW BELLA can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLIFF N VO
Examiner
Art Unit 2676



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
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